CLAIMS:

1. A surgical instrument system, comprising:

a distractor including a shaft and a paddle, the paddle being located on a distal end of the shaft;

a filler bar shaped to removably engage the shaft and paddle of the distractor;

wherein when the filler bar is engaged to the distractor, the filler bar provides rigidity and torque strength so that the distractor can be inserted between adjacent vertebrae in a first orientation and rotated to distract the adjacent vertebrae.

2. The system of claim 1, wherein the distractor paddle includes a first height dimension when presented in an insertion orientation and a second height dimension when rotated approximately 90 degrees to a distraction orientation, the second height dimension being greater than the first height dimension, the paddle having inferior and superior surfaces for contacting adjacent vertebrae in the distraction orientation.

3. The system of claim 2, wherein the filler bar extends substantially along at least one side of the shaft and paddle.

4. The system of claim 3, wherein the filler bar is dimensioned so as not to extend beyond the superior and inferior surfaces of the paddle.

5. The system of claim 3, wherein the filler bar is slidably engageable to and removable from the distractor along a longitudinal axis of the distractor.

6. The system of claim 2, wherein at least one of the inferior and superior surfaces of the paddle include a means for preventing migration of the distractor during distraction.

7. The system of claim 6, wherein the means for preventing migration includes a bone engaging element.

8. The system of claim 7, wherein the bone engaging element includes at least one tooth.

9. The system of claim 6, wherein the means for preventing migration includes at least one expansion shoulder operable to extend beyond at least one of the inferior or superior surfaces so as to increase the second height dimension.

10. The system of claim 2, wherein the distractor paddle and shaft present a guide surface for guiding the placement of an implant when the distractor is in the distraction orientation, and the distractor paddle further comprises an angled guide feature that is configured to guide an implant through a partial rotation to a desired angle.

11. The system of claim 10, wherein the angled guide feature includes an angled surface integral with a distal portion of the paddle.

12. The system of claim 10, wherein the angled guide feature is provided on a movable shim operable to extend from the guide surface to guide an implant through a partial rotation.

13. The system of claim 12, wherein the movable shim is retractable.

14. The system of claim 10, wherein the angled guide feature is formed from a shape memory material.

15. The system of claim 10, further comprising an implant inserter having an angled distal end, the angle corresponding approximately to the angle provided on the angled guide feature.

16. The system of claim 10, further comprising an implant inserter having an articulating implant holder operable to rotate an implant to a desired angle.

17. The system of claim 2, further comprising a minimally invasive access port through which the distractor is dimensioned to be placed.

18. The system of claim 2, further comprising a guide feature extending along the shaft and paddle, the guide feature configured for mating with at least one of an implant and an implant insterter to guide an insertion of an implant along the distractor.

19. The system of claim 2, further comprising at least one overhanging tab provided on at least one of the inferior and superior surfaces.

20. A surgical instrument system, comprising:

a distractor including

a shaft; and

a paddle, the paddle being located on a distal end of the shaft;

wherein the distractor paddle and shaft present a guide surface for guiding the placement of an implant when the distractor is in the distraction orientation, and the distractor paddle further comprises an angled guide feature that is configured to guide an implant through a partial rotation to a desired angle.

21. The system of claim 20, wherein the angled guide feature includes an angled surface integral with a distal portion of the paddle.

22. The system of claim 20, wherein the angled guide feature is provided on a movable shim operable to extend from the guide surface to guide an implant through a partial rotation.

23. The system of claim 22, wherein the movable shim is retractable.

24. The system of claim 20, wherein the angled guide feature is formed from a shape memory material.

25. The system of claim 20, further comprising an implant inserter having an angled distal end, the angle corresponding approximately to the angle provided on the angled guide feature.

26. The system of claim 20, further comprising an implant inserter having an articulating implant holder operable to rotate an implant to a desired angle.

27. The system of claim 20, further comprising a minimally invasive access port through which the distractor is dimensioned to be placed.

28. The system of claim 20, further comprising a guide feature extending along the shaft and paddle, the guide feature configured for mating with at least one of an implant and an implant insterter to guide an insertion of an implant along the distractor.

29. The system of claim 20, wherein the distractor paddle includes a first height dimension when presented in an insertion orientation and a second height dimension when rotated approximately 90 degrees to a distraction orientation, the second height dimension being greater than the first height dimension, the paddle having inferior and superior surfaces for contacting adjacent vertebrae in the distraction orientation.

30. The system of claim 29, wherein at least one of the inferior and superior surfaces of the paddle include a means for preventing migration of the distractor during distraction.

31. The system of claim 30, wherein the means for preventing migration includes a bone engaging element.

32. The system of claim 31, wherein the bone engaging element includes at least one tooth.

33. The system of claim 29, wherein the means for preventing migration includes at least one expansion shoulder operable to extend beyond at least one of the inferior or superior surfaces so as to increase the second height dimension.

34. The system of claim 29, further comprising

a filler bar shaped to removably engage the shaft and paddle of the distractor;

wherein when the filler bar is engaged to the distractor, the filler bar provides rigidity and torque strength so that the distractor can be inserted between adjacent vertebrae in a first orientation and rotated to distract the adjacent vertebrae.

35. A surgical instrument system, comprising:

a distractor including

a shaft;

a paddle, the paddle being located on a distal end of the shaft and having inferior and superior surfaces configured for contacting adjacent vertebrae to define a distraction height; and

at least one expansion shoulder operable to extend beyond at least one of the inferior or superior surfaces so as to increase the distraction height.

36. The system of claim 35, wherein the at least one expansion shoulder is slidable in an inferior-superior direction.

37. The system of claim 36, further comprising a shim slidable along a longitudinal axis of the distractor, the shim having a shoulder that contacts a shoulder on the at least one expansion shoulder so that distal movement of the shim causes the at least one expansion shoulder to increase the distraction height.

38. The system of claim 37, wherein the shim further includes an angled distal end so that distal movement of the shim further causes the angled distal end to extend at an angle from a distal end of the paddle to form an angled guide.

39. The system of claim 36, further comprising a linkage assembly slidably connecting the paddle and the at least one extension shoulder.

40. The system of claim 39, further comprising a slidable shim having a shoulder for contacting the linkage assembly to effect changes in the distraction height.

41. The system of claim 35, wherein the distractor paddle includes a first height dimension when presented in an insertion orientation and a second height dimension when rotated approximately 90 degrees to a distraction orientation, the second height dimension being greater than the first height dimension, the paddle having inferior and superior surfaces for contacting adjacent vertebrae in the distraction orientation, and the at least one expansion shoulder being operable to extend the second height dimension to a greater distraction height.

42. The system of claim 41, wherein the distractor paddle and shaft present a guide surface for guiding the placement of an implant when the distractor is in the distraction orientation.

43. The system of claim 42, further comprising a guide feature extending along the shaft and paddle, the guide feature configured for mating with at least one of an implant and an implant insterter to guide an insertion of an implant along the distractor.

44. A surgical instrument system, comprising:

an articulating implant inserter including

a shaft; and

an articulatable implant holding element located on a distal end of the shaft, the articulatable implant holding element being operable from a proximal portion of the shaft to releasably hold an implant; and

an implant having a connecting element that cooperates with the articulatable implant holding element to allow articulation of the implant to a desired angle upon operation of the implant holding element.

45. The system of claim 44, wherein the implant connecting element is internal to the implant.

46. The system of claim 44, wherein the implant connecting element is external to the implant.

47. The system of claim 44, wherein the articulatable implant holding element includes two sliding elements having distal implant impaction faces, the implant holding element being operable from a proximal handle to provide relative sliding in a proximal-distal direction along the shaft to selectively articulate the implant to a desired angle.

48. The system of claim 47, wherein the position of the handle acts as a visual indicator for an angle through which the implant has been rotated.

49. A surgical instrument system comprising:

a means for distracting adjacent vertebrae;

an implant;

a means for inserting the implant into a space between the adjacent vertebrae; and

a means for rotating the implant to a desired angle between the adjacent vertebrae upon insertion.

50. The system of claim 49, wherein the means for distracting adjacent vertebrae comprises two distraction paddles movable away from each other to distract adjacent vertebrae.

51. The system of claim 49, wherein the means for distracting adjacent vertebrae comprises a distractor paddle having a first height dimension when presented in an insertion orientation and a second height dimension when rotated approximately 90 degrees to a distraction orientation, the second height dimension being greater than the first height dimension, the paddle having inferior and superior surfaces for contacting adjacent vertebrae in the distraction orientation.

52. The system of claim 49, wherein the means for distracting adjacent vertebrae comprises: a shaft;

a paddle, the paddle being located on a distal end of the shaft and having inferior and superior surfaces configured for contacting adjacent vertebrae to define a distraction height; and

at least one expansion shoulder operable to extend beyond at least one of the inferior or superior surfaces so as to increase the distraction height.

53. The system of claim 49, wherein the means for inserting includes a ratchet gun.

54. The system of claim 49, wherein the means for inserting includes an articulating implant inserter operable to place the implant at a desired angle.

55. The system of claim 49, wherein the means for rotating the implant to a desired angle includes an articulating implant inserter operable to place the implant at a desired angle.

56. The system of claim 49, wherein the means for rotating the implant to a desired angle includes an angled guide feature located on a distal end of the means for distracting.

57. The system of claim 49, wherein the implant has domed inferior and superior surfaces configured to correspond to surfaces of adjacent vertebrae when placed therebetween at the desired angle.

58. The system of claim 49, wherein the implant has a leading end having a bullet-shaped cross-sectional profile in at least two planes.

59. A minimally invasive surgical method comprising:

inserting a distractor assembly through a minimally invasive surgical access port and between adjacent vertebrae in an insertion orientation, the distractor assembly including:

a shaft;

a paddle, the paddle being located on a distal end of the shaft; and

a filler bar removably engaged to the shaft and paddle of the distractor so as to provide rigidity and torque strength to the distractor assembly;

rotating the distractor assembly to a distraction orientation to distract the adjacent vertebrae; and

disengaging the filler bar from the shaft and paddle and removing the filler bar through the minimally invasive surgical access port while leaving the shaft and paddle in place to maintain a desired distraction of the adjacent vertebrae.

60. The method of claim 59, wherein the distractor paddle includes a first height dimension when presented in an insertion orientation and a second height dimension when rotated approximately 90 degrees to a distraction orientation, the second height dimension being greater than the first height dimension, the paddle having inferior and superior surfaces for contacting adjacent vertebrae in the distraction orientation.

61. The system of claim 59, further comprising inserting an implant between the adjacent vertebrae using the shaft and paddle as a guide for placement of the implant.

62. The method of claim 61, wherein the paddle includes an angled guide element on its distal end and the insertion of the implant using the shaft and paddle as a guide for placement includes rotating the implant to a desired angle based on the angled guide element.